Original Research Article

IJCRR
Section: Healthcare
Sci. Journal
Impact Factor
4.016

TREND IN EXTRAPULMONARY TUBERCULOSIS WITH SPECIAL REFERENCE TO LYMPH NODES-A FIVE YEARS STUDY

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ABSTRACT

Introduction: Tuberculosis is still one of the most frequently occurring infectious diseases worldwide. The term extrapulmonary tuberculosis has been used to describe the isolated occurrence of TB at body sites other than the Lung. In India extrapulmonary tuberculosis comprises 20% of all cases of tuberculosis.

Aim & Objective: To study the clinicomorphological pattern of lymphnode pathology.

Material & Methods: Our study is a retrospective analysis of all lymphnode excision cases received in the Department of Pathology for a period of 5 years (January 2007 to December 2011).

Result: We received a total of 98 cases, of which 36 were tubercular lymphadenitis. Maximum number of cases was in the age group of 22-31 years and females outnumbered males.

Conclusion: Cervical group of lymphnodes were most commonly involved and cases w ere at peak in 2011 after which it reduced.

Key Words: Tuberculosis, Extrpulmonary, Lymphadenitis, Cervical

INTRODUCTION

Tuberculosis (TB) is still one of the most frequently occurring infectious diseases worldwide. According to the World Health Organization, approximately one third of the world's population is infected with tubercle bacilli. Eight million new cases of the active disease develop each year and three million people die from it [1].

India has the highest TB burden accounting for one fifth of the global incidence. According to a report issued by the government of India, nearly 40% of the Indian population is infected with the TB bacillus [2].

The term "extrapulmonary TB" has been used to describe the isolated occurrence of TB at body sites other than the Lung. [3]. An increasing incidence of extrapulmonary TB has been noted both in developing and developed countries since the mid-1980s. Almost one-fifth of TB cases in the United States are extrapulmonary [4].

In India, extrapulmonary TB comprises 20% of all TB cases. Extrapulmonary TB has become more common since the advent of human immunodeficiency virus (HIV) infection. [5].

Mycobacterial lymphadenitis comprises about 2% to 5% of all cases of TB and is more common among children, women and minorities, as well as in immunosuppressed patients, especially those with HIV [1].

Tuberculous lymphadenitis in the cervical region is known as scrofula, a term derived from the Latin for "glandular swelling." [6]. The cervical lymph nodes are most frequently involved, followed by the mediastinal lymph nodes and the axillary lymph nodes. [7].

The M. tuberculosis granuloma, classically characterized by the presence of central caseous necrosis, is referred to as a tubercle. Typically, there is a central area of amorphous caseating granular debris and loss of cellular detail, and presence of acid-fast bacilli, the area is encircled by epithelioid cells, lymphocytes, histiocytes, fibroblasts, and occasionally Langhans' giant cells. These histologic features of the granuloma are sufficiently characteristic to allow reasonably accurate diagnosis of tuberculosis [8].

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Received: 07.07.2016 **Revised:** 16.08.2016 **Accepted:** 12.10.2016

While caseating granuloma is the classic finding in cases of tuberculosis, Immunosuppression may alter the classic histopathologic features of tuberculosis. A spectrum of histopathologic granulomatous tissue reactions are seen in patients infected with HIV [9]. Classic well-formed granulomas have been observed in individuals with early HIV disease whose CD4 cell counts have remained adequate. In patients with advanced HIV disease, the granulomas are less well formed and more necrotic [8]..

Extrapulmonary TB is more common in HIV-infected patients compared to patients without HIV infection [10, 11]

MATERIAL & METHODS

This retrospective study was conducted in the Department of Pathology, Vinayaka Mission's Kirupananda Variyar Medical College, Salem. A total of ninety eight consecutive cases of lymphadenitis, from January 2007 to December 2011 (5years), diagnosed on histopathology were reviewed for clinicomorphological studies. All the slides were stained by Haematoxylin and eosin (H&E) stain. Special stains were used wherever necessary.

RESULTS

We studied a total of 98 sample retrieved from the files of Department of Pathology, Vinayaka Mission's Kirupananda Variyar Medical College , Salem , from January 2007 to December 2011.

The age range was from 2.5 years to 72 years with the mean age being 35 years.

Most of the samples were fallen in the age group of 22 to 31 years. The least incidence of disease is seen in the age group of 72 to 81 years. (Table – 1)

In this study, females were predominantly affected compared to males, the ratio being 9:7. (Female: Male) (Table – 2)

The pathology in lymphnodes ranged from caseating tuberculous granuloma to reactive lymphadenitis to nonspecific lymphadenitis to primary tumours and secondary tumours. (Table – 3)

However the commonest disease was Tuberculosis with Extensive caseating necrosis and the least disease was Suppurative lymphadenitis.

In our study, the commonest extra pulmonary site of tubercular involvement was cervical lymphnode (45) and the least involved lymphnodes were supraclavicular and anterior chest wall one each case. (Table – 4)

Our study revealed that incidence of caseating granuloma, s/o tuberculosis show decreasing trend from year2007 (10.2%), 2008 (8.1%), 2009(6.1%) 2010 (4.0%) and again increased upto 8.1 % in 2011. (Table – 3)

Table 1: Age incidence

Age range (years)	No. of cases
2-11	17
12 – 21	12
22 -31	23
32 – 41	15
42 -51	14
52 -61	11
62 -71	5
72- 81	1
Total 98 cases	

Table 2: Sex incidences

Year	Male	Female	Total No. of cases
2007	08	10	18
2008	7	10	17
2009	11	17	28
2010	9	7	16
2011	9	10	19

Table 3: Spectrum of diseases in lymph node

Year Extensive caseating necrosis Reactive changes Non specific Primary tumour Secondary tumours Others Total
2007 10(10.2%) 5 1 Hodgkin's disease 1 1 -- 18
2008 8 (8.1%) 1 3 HD -1 3 1 case not reported 17
2009 6 (6.1%) 10 8 NHL – 1 HD - 1 2 -- 28
2010 4 (4.0%) 4 3 HD - 4 1 -- 16
2011 8 (8.1%) 6 -- NHL - 2 2 Suppurative - 1 19
Total 36 2 15 10 09 02 98

Table 4: Spectrum of various lymphnodes involvement

Sl.no.	Various lymphnodes	Frequency of cases
1	Cervical	45
2	Submandibular	5
3	Submental	3
4	Inguinal	8
5	Anterior chest wall	1
6	Axillary	4
7	Mesentric	3
8	Supraclavicular	1
	Total	70

DISCUSSION

Tuberculosis is a major health problem in the developing countries. Its incidence is also increasing due to increased incidence of AIDS.

Microscopically the disease progresses through early exudative to caseous to late fibrocalcific lesions. [12].

The World Health Organization reported 1.1 million new cases of TB among HIV-infected persons in 2009. High HIV prevalence regions have experienced a greater burden of extrapulmonary TB. Extrapulmonary TB is more

Common in HIV-infected patients compared with patients without HIV infection, and its incidence has doubled since the beginning of the HIV pandemic. Furthermore, the most common form of extra-pulmonary TB is in peripheral lymph nodes in HIV-infected patients [13].

In our study the more common age group for extrapulmonary tuberculosis was younger age group and more common in females in contrast to pulmonary tuberculosis which is more common in males and in the older age group as seen in literature and the commonest lymph nodes were in cervical region as in literature [5].

In this study, the extra pulmonary tuberculosis was diagnosed mainly by the presence of granuloma with extensive caseous necrosis. It is apparent that granulomatous conditions of diverse etiologies share common histologic features, although the etiologic agent is not always identifiable. Although the histopathologic patterns in various infectious granulomas may be sufficiently different to prevent an accurate diagnosis, atypical presentations may necessitate identification of the specific etiologic agent by direct microscopic examination, culture, serology, or molecular detection. [8].

The differential diagnosis of isolated peripheral tuberculous lymphadenitis includes adenitis due to other mycobacteria, bacterial adenitis, fungal disease, toxoplasmosis, sarcoidosis, cat-scratch disease, cystic hygroma, nonspecific hyperplasia, and primary or metastatic neoplasms [7].The literature has classically supported excisional biopsy as the definitive diagnostic procedure for diagnosis of nodal TB [7,30]. Identification of caseating granulomatous inflammation with Langhans and foreign body giant cells supports a diagnosis of TB. [5].

Tuberculosis is now the most common co-infection that occurs with HIV disease and is a major factor responsible for the increased morbidity and mortality rates in HIV-infected individuals (Toosi et al., 2004).

In our study, the incidence of extrapulmonary tuberculosis in early years started declining and in the year 2011 again the incidence of extrapulmonary

Tuberculosis with extensive caseous necrosis started rising probably because of rising HIV incidence in the later years.

HIV alters the course of TB. The non-cyto- pathic nature of HIV in phagocytic cells enables these cells to produce a prolonged milieu of cytokine factors, including IFN-gamma and IL-6, which are conducive to both disease pathologies (Bal et al., 2004). Co-infection with HIV inhibits cell-mediated responses to MTB through interruption of IL-2 signaling (Lawn et al., 2001). Under these conditions the risk of acquiring MTB infections from the environment, progression to disease, or re-activation of a latent TB infection may occur rapidly (Glassroth, 2005; Swaminathan, 2004). Co-infection with HIV and TB presents various diagnostic challenges (Kassu et al., 2007). An atypical presentation may be observed due to HIV-induced immunodeficiency, mycobacterial dissemi- nation and the lack of self-limiting tissue damage in the host (Lawn, 2005). [14].

CONCLUSION

In this study, the incidence of extrapulmonary tuberculosis is more common in younger age group and in females. Its incidence started rising after year 2011 possibly due to a rise in immunosuppression like HIV. The worldwide incidence of TB is increasing currently, as HIV-infected patients are at extremely high risk for progression from latent TB to active disease. The unusual clinical manifestations of TB should not be ignored in high-risk group. We should distinguish between tuberculous lymphadenitis and Non – tuberculous lymphadenitis as the treatment modalities are different.

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